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study conducted by Miss Hayes include mechanics, thermodynamics, geodynamics and theoretical astronomy.

PROFESSOR HUGO DE VRIES, of Amsterdam, has been called to the chair of botany in the University of Würzburg as successor to the late Professor J. Sachs. In the same University, Professor Ph. Stohr, of Zurich, has been appointed professor of anatomy in succession to Professor v. Kölliker, who will hereafter confine himself to histology and embryology. Dr. Salomon has qualified as docent in geology and mineralogy in the University at Heidelberg.

DISCUSSION AND CORRESPONDENCE.

NEW TERMS IN GEOLOGY.

PROFESSOR DAVIS, speaking in behalf of new terms in geology and geography (SCIENCE, July 2, p. 24), makes the following points: that new terms are necessary to any advancing science; that new things and new ideas must have new names, and that the investigator must be left as free to name his conclusions as to reach them. He mentions some terms introduced by Powell in 1874 as examples of useful ones, and others of later introduction which he expects to see survive; at the same time he admits that he has been not a little amused at watching the rest of us 'wrestle' with new terms.

These contentions seem at first glance to be altogether reasonable. But that new terms are demanded by an advancing science is admissible only in a limited sense. The discovery of new elements, new materials, new biologic forms, all call for new names. To these no one thinks of objecting. Aside from such cases, what book published in the last fifty years has contributed more than any other to the advance of science all along the line? Darwin's 'Origin of Species.' And how many new terms did Mr. Darwin use? Not one—if we except such an expression as 'natural selection.'

The newest science of which I have any knowledge is that now being remarkably developed by Dr. Charles H. Gilbert, of Stanford University, in studying geographic and geologic changes by means of the fish faunas. And I venture to say that his splendid results will eventually be brought forth, not dressed in the

paraphernalia of a new terminology, but without the use of a single new expression.

It certainly does not follow, then, that an advancing science and new ideas must, of necessity, have new names.

As for freedom to name one's conclusions, I would ask: Is this naming a matter that concerns the finder alone, or does it concern every one who has to do with the science? Are facts and conclusions private property to be named, like one's dog, as the owner happens to fancy, or are they a part of science, and to be named with some reference to those who may have to use them?

Mention is made of certain geographic terms that are expected to prove useful. I may specify one of these—*Cuesta* (Spanish for the flank or slope of a hill, but also used for a hill itself)—as the kind of a word which, in my opinion, is not demanded either by the necessities of an advancing science, or as representing a new idea. And if we see fit to name one kind of a hill *cuesta*, with just as much reason we may baptize with new technical names all the different parts, kinds, sizes and shapes of hills on the face of the earth, while students may be asked to fill their bellies with these husks of science under the impression that they are necessary parts of the science itself. Everyone remembers the story of Agassiz setting a new student to study a case of birds, and how, when he reported a few hours later that he knew all of their names, he was told to forget the names and to go back and study the birds.

But the main point is whether such things advance knowledge or serve important purposes in that advancement. When Mr. Gilbert described certain structural features of deep-seated igneous rocks he advanced our knowledge, and when he gave us a rational name by which to call those hitherto unknown forms he gave us a label for that knowledge. But it hardly follows from an instance of this kind that forms and structures that geologists have long known and comprehended should be given new names either from the Spanish or from any other language. We shall not understand a synclinal mountain any better by calling it a 'Shickshinny.' It is hardly a case of new bottles needed for new wine.

Terms that save men's time and nervous energy are helpful and welcome; those that consume time and energy without adequate return are 'useless incumbrances.' For this is a pretty busy world, and as many of us are anxious to keep pace with what is going on in geology and geography we often feel impelled to say to contributors, as we do to callers at the the office during business hours: "Be plain; be brief."

Local names serve good purposes with students who are obliged to get their ideas of geology from local illustrations, but such names should be kept at home; in the general literature of the subject they are what the European geologists call them.

One's feeling the need of a new term, or his having found one 'serviceable in his lectures during the past winter,' are certainly not of themselves sufficient reasons for introducing them to the public.

Technical names are a necessary evil, and new ones cannot be avoided; but it is our duty to increase this evil as little as we can, and only after duly weighing the pros and cons of each case.

JOHN C. BRANNER.

STANFORD UNIVERSITY, CALIFORNIA,
July 12, 1897.

NOTES ON SOME FOSSILS OF THE COMANCHE SERIES.

THE description and figure of *Turritella leonensis* given by Conrad in the Report of the Mexican Boundary Survey implies that all of the whorls of the shell in that species are rounded. In my 'Description of Invertebrate Fossils from the Comanche series in Texas, Kansas and Indian Territory' (Colorado College Studies, V), I described *Turritella denisonensis* from the Choctaw limestone of northern Texas, noting its resemblance to *T. leonensis*, but separating it from that species on the ground of the much enlarged and angulated, or shouldered, body-whorl. In 1895 Mr. R. W. Goodell brought some fragmentary but interesting specimens of *leonensis* from the Trans-Pecos region of Texas, whence came Conrad's types of the species. One of these shows the body-whorl to be enlarged and shouldered as in *denisonensis*. I therefore suspect the latter to be

a synonym of *leonensis*. As the northern specimens have been found in both the Choctaw and Grayson members of the Denison formation, while there is reason to believe that Mr. Goodell's specimens are from the Washita formation, it is probable that *Turritella leonensis* ranges throughout the entire Gainesville division.

In 1893, in the Fourth Annual Report of the Geological Survey of Texas (Part II., page 232), the writer noticed a shell that had been collected by Mr. L. S. Williams from 'drift,' in northern Texas, briefly characterizing it as a variety of *Turritella seriatim-granulata* and assigning to it the name *ventrivotuta*. Our first positive knowledge of the stratigraphic place of this shell is afforded by a fine specimen which the writer found in 1893 (only a few months after the original notice of the shell had been published) near Belvidere, Kansas, in the lower part of the Kiowa shales, viz., the Fullington beds, which correspond more or less nearly with the Kiamitia of Texas. The specimen is complete, and the half which is free from the matrix affords an apertural view of the shell in its entire length. The ornamentation is well preserved and, taken in connection with the other characters, shows that the shell is very distinct from *T. seriatim-granulata*. Like the latter species, it belongs to the subgenus *Mesalia*, and should be known as *Turritella (Mesalia) ventrivotuta*.

Turritella belviderei, sp. nov.—Shell of medium size in the genus, consisting of ten or more flattened or somewhat convex whorls; suture feebly impressed; aperture round-rhombic, slightly elevated; whorls ornamented with about six subequal to unequal, abruptly elevated revolving ribs whose summits are beaded, each bearing a rather closely-set series of oblique to transverse prominent granules; the intercostal intervals square-bottomed, those of the upper spire-whorls and of the lower parts of the body-whorl and first spire-whorl wider than the ribs, those of the upper parts of the body-whorl and first spire-whorl respectively less than and about equal to the ribs; upper rib and tubercles of each whorl usually coarser than the others, especially so in the case of the body-whorl, in which the large tubercles are sometimes distinctly arcuate (concave on the side away from